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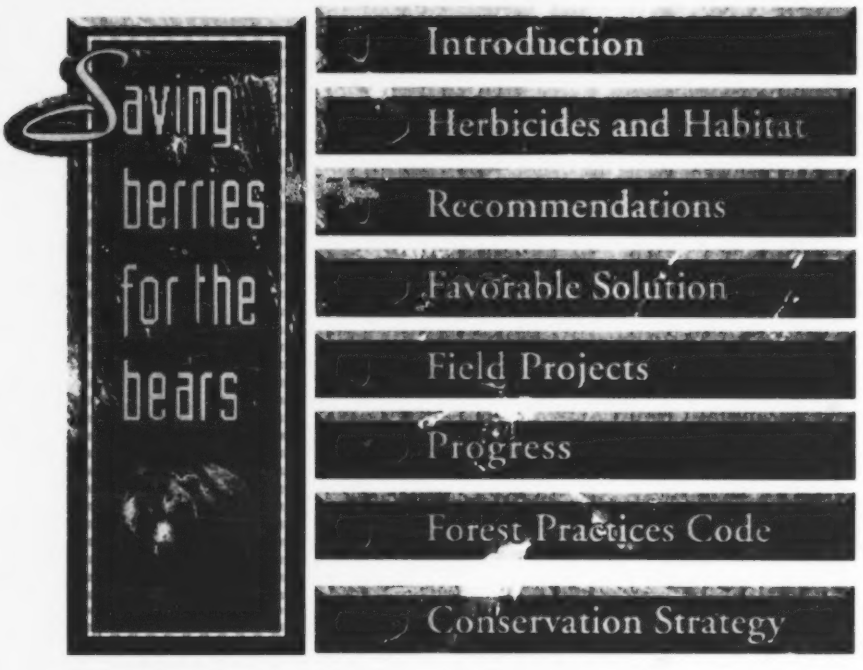

Saving Berries for the Bears

Introduction || Herbicides and Habitat || Recommendations
A Favorable Solution || Field Projects ||Progress
Forest Practices Code ||Conservation Strategy

A new approach to silviculture is underway in B.C.'s mainland coastal valleys. It's an adaptive forest management process designed to maintain and restore important grizzly bear habitat while continuing to produce high-value timber.

BRITISH COLUMBIA

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This web site is based on the published brochure, *Saving berries for the bears*.
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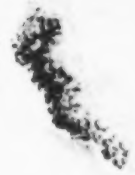
This page has been accessed 8568 times since May 30, 1997.

Introduction

The nutrient-rich valleys of coastal mainland British Columbia contain some of the most productive sites in the world for growing large conifer trees. These same valleys also support some of Canada's highest concentrations of grizzly bears.



The grizzlies are attracted to the abundant berry-producing shrubs and other vegetation found in the floodplains, skunk cabbage swamps, and lower side slopes of coastal valleys. The moist, rich soils of the valley bottoms provide an excellent environment for a variety of important grizzly bear forage species--red elderberry, currents, salmonberry, red-osier dogwood, devil's club and skunk cabbage.

After a coastal valley bottom is logged, many of the plants that grizzlies feed on are among those that compete for growing space and sunlight with regenerating tree seedlings. This competition for limited resources can make it difficult to re-establish a new crop of commercial trees. As a result, silviculturists often use herbicides or manual methods to control the growth and spread of competing vegetation.

Home Page || Herbicides and Habitat || Recommendations || A Favorable Solution
Field Projects || Progress || Forest Practices Code || Conservation Strategy

Red Elderberry
(Sambucus racemosa)

Habitat type
Floodplains and lower side slopes.

Food source
In early summer, the bears eat vast quantities of ripe berries.

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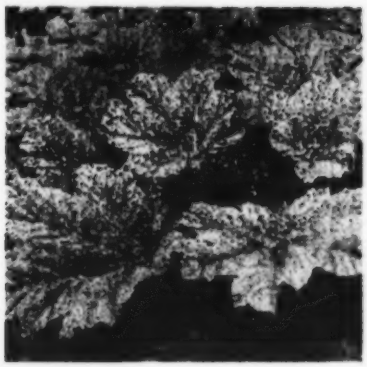
Home Page || Introduction || Herbicides and Habitat || Recommendations || Favorable Solution
Field Projects || Progress || Forest Practices Code || Conservation Strategy



Devil's Club
(Oplopanax horridus)

Habitat type
Floodplains and lower side slopes

Food source
In late spring, the bears eat emergent leaves (new growth), turning to green and ripe berries in the early summer.

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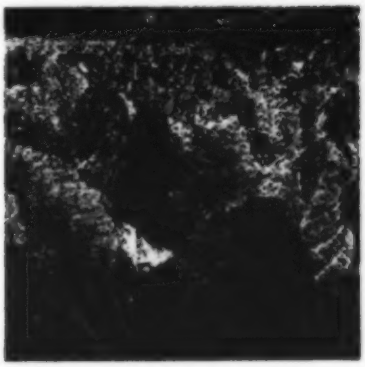
Home Page || Introduction || Herbicides and Habitat || Recommendations || Favorable Solution
Field Projects || Progress || Forest Practices Code || Conservation Strategy



Skunk Cabbage
(Lysichiton americanum)

Habitat type
Valley bottom swamps

Food source
In spring, the bears dig up and eat the tender white leaf base just under the soil.

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Home Page || Introduction || Herbicides and Habitat || Recommendations || Favorable Solution
Field Projects || Progress || Forest Practices Code || Conservation Strategy

Herbicides and Habitat

A 1991 study (FRDA Report #165) found that managing competing vegetation with herbicides can seriously affect the availability of grizzly bear forage over both the short and long term.

Over the short term, the bears' local food supply can be significantly reduced, even though some forage species do recover a few years after the herbicide treatments have been completed.

More importantly, managing competing vegetation can contribute to shortages in grizzly bear forage over the long term by helping to create dense stands of regenerated trees which can deprive berry-producing shrubs and other vegetation of the sun they need to survive. As dense stands grow, the forest canopy gradually begins to close, and after 15 to 25 years, the sunlight can no longer reach the forest floor. Most of the plant species important to grizzly bears cannot tolerate these low-light conditions, and they either die out or fail to produce fruit. Since many of B.C.'s second-growth forests are on rotation periods of between 80 and 100 years (length of time between harvests), this can result in a critical shortfall in grizzly forage over an extended period of time.

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Home Page || Introduction || Recommendations || A Favorable Solution
Field Projects || Progress || Forest Practices Code || Conservation Strategy

One of the major recommendations to come out of

Recommendations

One of the major recommendations to come out of the 1991 herbicide study called for more research into alternative silvicultural techniques to better integrate grizzly bear habitat requirements with timber harvesting. Tony Hamilton, a Wildlife Research Biologist with BC Environment, and the principal researcher in the herbicide study, spearheaded the follow-up to that recommendation.

Hamilton pushed for a move towards reforesting coastal valley bottoms with known grizzly bear populations in a manner that mimics the natural conditions found in those areas. The natural vegetative cover in the lower elevations of coastal valleys generally consists of clusters of mature conifers, with numerous groupings of deciduous trees, open brushy areas, and skunk cabbage swamps.

"Grizzly bears depend on diversity above all," says Hamilton, "and we need to take a proactive approach now to ensure that quality grizzly habitat is available in the future."

Hamilton's first step was to meet with Ted Nash, a Silviculture Officer with the Vancouver Forest Region of the B.C. Forest Service. Hamilton presented Nash with some of his ideas for managing coastal valley bottoms in a way that would promote the growth of grizzly bear forage throughout the entire length of a rotation. His proposal involved: reducing the reforestation stocking standards (specified number of crop trees per hectare) for coastal valley sites; spacing and pruning existing reforested sites to encourage grizzly forage production; and developing guidelines to assist silviculturists in managing areas with important grizzly habitat.

Hamilton's proposal was met favourably by Nash and the Vancouver Forest Region.

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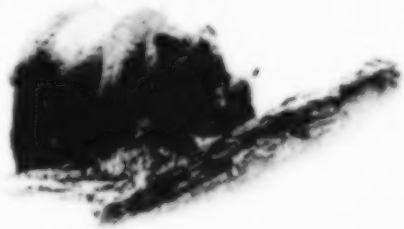
Home Page || Introduction || Herbicides and Habitat || A Favorable Solution
Field Projects || Progress || Forest Practices Code || Conservation Strategy

Favorable Solution

"It was a win/win situation," says Nash. "We were already having difficulty reforesting coastal valley bottoms to the existing stocking standards because of the extensive brush found in those areas. And the expense associated with managing vegetation in those remote locations can be quite high. Here was a good opportunity to try some new approaches in managing two forest resources which seemed to be in direct conflict with each other."



Together, Hamilton, Nash and other foresters from the Vancouver Forest Region worked out a set of revised stocking standards for grizzly-inhabited coastal valleys. Their goal was to produce reforested stands that more closely resembled the natural cover found in the valleys prior to logging, while continuing to produce high-value timber.

The new stocking levels were therefore introduced under an adaptive management approach. With adaptive management, existing operations are continually modified and improved based on the results of ongoing investigative field trials. It is learning by experience, adopting those techniques that work and eliminating those that don't.

"The important thing was to get the process rolling," notes Ted Nash, "especially in those areas where it was considered critical. We could at least start with the revised stocking levels, and the results from our field operations and trials would eventually tell us which way to go."

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Home Page || Introduction || Herbicides and Habitat || Recommendations
Field Projects || Progress || Forest Practices Code || Conservation Strategy

Field Projects

In May 1992, a set of interim guidelines were implemented outlining the **adaptive management approach** that silviculturists should take in managing coastal valleys with important grizzly bear habitat. The guidelines: identify the ecosystems associated with grizzly bear forage production; provide the recommended revised stocking standards for those ecosystems; list the primary grizzly bear forage species; and set parameters for conducting and monitoring field operations.

A number of operational field projects were set up to test a variety of different silvicultural techniques for compatibility with grizzly forage production.

With one of the most promising techniques, conifer seedlings are planted in groups or clusters, leaving open areas for growing berry-producing shrubs and other forage species. Herbicides may be used selectively in the conifer clusters, but not in the open areas. The size of the clusters, the number of trees per cluster, and the open space or gaps between the clusters are varied to determine the impacts on forage production, tree growth, and overall treatment costs. Cluster planting projects are currently underway in the Kimsquit and Kwatana Valleys near Bella Coola, the Kitimat Valley near Terrace, the Kingcome Valley north of Powell River, and in several other coastal valleys.

Field projects have also been established on previously reforested coastal sites. For example, brushy overgrown sites are being treated to create clusters of conifers, while existing open areas are retained for growing grizzly forage. On overly-dense reforested sites, spacing and pruning are being carried out to test a variety of gap patterns, sizes, and configurations for their impact on forage productivity and timber value.

Other projects involve monitoring previously reforested sites that already have some openings in the forest cover where grizzly bear forage species are well established. These sites are not manipulated in any way, but are simply monitored and assessed for grizzly forage production and timber quality and volume. The information obtained from this kind of monitoring is used to fine tune operational field procedures.

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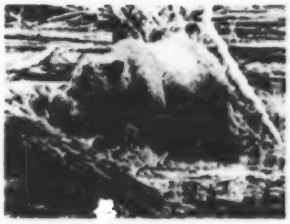
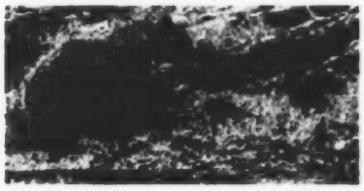
Home Page || Introduction || Herbicides and Habitat || Recommendations
Favorable Solution || Progress || Forest Practices Code || Conservation Strategy

Progress



The coastal grizzly bear/silviculture guidelines have been implemented for over two years now, and the first field assessments are expected to be completed by the latter part of 1995. Conducting on-the-ground operations requires a high degree of cooperation between the Forest Service, BC Environment, and participating forest companies. The cooperation to date has been good, with several forest companies and Forest Service Districts actively participating in ongoing projects.

The process to fully integrate coastal grizzly bear habitat requirements with silviculture operations is still in the early stages of development. Nevertheless, Tony Hamilton is optimistic over the future prospects.



"Through a combination of protecting critically-important forage areas, maintaining forage on harvested sites, and restoring forage on reforested sites, we can help ensure the survival of the coastal grizzly. But that's not all--the increase in biodiversity that will occur under the guidelines will benefit many other wildlife species as well. And, what's more, the entire process is compatible with commercial forestry."

Ted Nash is also enthusiastic over the guidelines and how they might contribute to improved forest stewardship in British Columbia. "I would like to see this adaptive approach to grizzly habitat management serve as a showpiece for how we can successfully integrate wildlife requirements with forestry operations."

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Home Page || Introduction || Herbicides and Habitat || Recommendations
Favorable Solution || Field Projects || Forest Practices Code || Conservation Strategy

Forest Practices Code

With the introduction of B.C.'s new Forest Practices Code, Hamilton's and Nash's hopes are well on their way to becoming realized. The Forest Practices Code will enforce tough new regulations in support of approved wildlife habitat guidelines such as those for the grizzly. Under the Code, silviculture activities such as spacing and pruning must be carried out where lower than normal tree densities are required to meet approved wildlife habitat management objectives.

See the *Operational Planning Regulation* Part 5, Division 2, Section 51(2)(d)(e) for specific wording regarding spacing and pruning requirements under the Forests Practices Code. See the *Pruning Guidebook* for information regarding pruning and wildlife habitat management. See the *Spacing Guidebook* for information on modifying maximum density numbers to achieve desired stand conditions.

The Forest Practices Code also requires important wildlife habitat areas to be identified and mapped as part of the operational planning process, and enables the Forest Service to require special management of these areas. Furthermore, the Code provides for the development of special management strategies for threatened, endangered, vulnerable, or regionally-significant wildlife species--the grizzly is currently recognized as one of the world's most threatened species.

For further information regarding the Forest Practices Code:

Home Page || Introduction || Herbicides and Habitat || Recommendations
Favorable Solution || Field Projects || Progress || Conservation Strategy

Conservation Strategy

Additional support for the grizzly and its habitats is provided by the recently-announced Grizzly Bear Conservation Strategy. This strategy was developed to help ensure that grizzly bears, their habitats, and their ecosystems are maintained and, where necessary, allowed to recover. The strategy also promotes protection for key grizzly habitat, improved public education and information, a review of hunting regulations, and more sensitive land-use practices.

For an animal whose range has been significantly reduced in most other parts of North America, the coastal grizzly bear/silviculture guidelines are an extremely important development. Maintaining the grizzly's vital coastal habitats could, in the long run, turn out to be a critical factor in the survival of the species. With sanctuaries like the Khutzeymateen Valley, the grizzly/silviculture guidelines firmly in place and backed by the Forest Practices Code, and the support of the Grizzly Bear Conservation Strategy, the grizzly should continue to roam BC's coastal valleys for a long time to come.

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Home Page || Introduction || Herbicides and Habitat || Recommendations
Favorable Solution || Field Projects || Progress || Forest Practices Code

For information about BC government grizzly bear initiatives try:
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http://www.for.gov.bc.ca/hfp/archives/amhome/summary/grizzly.htm
http://www.for.gov.bc.ca/hfp/archives/amhome/thumb/berybear.htm